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ABSTRACT

The education system of the United States is rated on the performance of students on large-scale standardized tests. In addition, a major portion of a student's grade for a course is based on the level of performance on classroom tests. Since this is the case, the education system must take testing and the results of testing very seriously. The purpose of this research project is to determine if test-taking strategies affect the test scores of middle school students. The research was conducted with 40 middle school students according to the steps of instructional procedure described in "Learning Strategies Curriculum: The Test- Taking Strategy" (C. A. Huges, J. B. Shumaker, J. B. Deshler, and C. D. Mercer, 1988). Analysis of the data shows that using a test-taking strategy during testing significantly improved test scores. The students in the experimental group who received the test-taking strategy training improved their test scores on the posttest significantly more than their control group counterparts who did not receive any test-taking strategy training. An appendix contains research consent statements. (Contains 5 figures, 5 tables, and 42 references.) (Author/SLD)

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ED 424 285

THE EFFECT OF TEST-TAKING STRATEGIES ON THE TEST SCORES OF MIDDLE SCHOOL LEVEL STUDENTS

A Thesis

Presented to

The Faculty of the Master of Arts Degree Program

Salem-Teikyo University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts in Education

By

Katrina M. Andrews

August 1998

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Katrina Andrews

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Salem-Teikyo University

Salem, West Virginia

This thesis submitted by Katrina M. Andrews has been approved meeting the research requirements for the Master of Arts Degree.

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Acknowledgment

For my husband, Jim, who has sacrificed so much,

and my mother, Norma, who has always had faith in my abilities.

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ABSTRACT

THE EFFECT OF TEST-TAKING STRATEGIES ON THE TEST SCORES OF MIDDLE SCHOOL LEVEL STUDENTS

Katrina M. Andrews

The education system of the nation is rated on the performance of the students on large-scale standardized tests. In addition, a major portion of a student's grade for a course is based on the level of performance on classroom tests. Since this is the case, the education system must take testing and the results of testing very seriously.

The purpose of this research project is to determine if test-taking strategies affect the test scores of middle school students. The research was conducted on 40 middle school students according to the steps of instructional procedure described in the Learning Strategies Curriculum for Learning Strategies Curriculum: The Test-Taking Strategy (Hughes, C. A., Schumaker, J. B., Deshler, D. D., & Mercer C. D., 1988).

Analysis of the data collected during this experiment shows that using a test-taking strategy during testing significantly improved test scores. The students in the experimental group who received the test-taking strategy training improved their test scores on the posttest significantly more than their control group counterparts who did not receive any test-taking strategy training.

CHAPTER 1
Introduction

Purpose of the Study

How is the quality of education judged? Can it be judged fairly in all areas of the country? How can what students know and can do be determined? How do American scores compare on an international level? How can these scores be improved? Can the assessment of students be used in such a way as to contribute to the well being of students and the educational system in general? These questions are very difficult to answer with any degree of completeness (Baker & Linn, 1991).

Of the many educational issues, none receives more intense scrutiny than the evaluation and resulting scores of the students (Hoachlander, 1998). The measurement of student achievement is, has been, and will always be a focal point in education. Many organizations, firms, companies, and individuals set goals to recognize shortcomings in standardized testing methods and research ways to improve these deficiencies (Baker & Linn, 1991; ERIC Clearinghouse on Assessment and Evaluation, 1998; Lawton, 1997). Some basic goals of such groups are: (a) to impact the policies on assessment at national, state, and local levels, (b) to improve quality, sensitivity, and fairness of assessments,

(c) to improve assessment practices within the educational system, and (d) to improve understanding of assessment and its contribution to the educational system and society as a whole (Baker & Linn, 1991).

These grand-scale goals to improve assessment are necessary; however, many organizations feel that a more grassroots approach may be better (Georgiady &Romano, 1994; Hughes, 1985; ICPAC Information Series, 1996; Niener & Others, 1995; Ohio State Board of Education, 1995; Ross, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1996: "Test-taking strategies," 1997). These organizations assert that better scores begin with the individual student. If the student is better prepared to take the assessment then higher scores will logically follow (Georgiady &Romano, 1994; Hughes, 1985; ICPAC Information Series, 1996; Niener & Others, 1995; Ohio State Board of Education, 1995; Ross, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1996: "Test-taking strategies," 1997).

Research Question

Do test-taking strategies have an effect on the test scores of middle school level students?

Hypotheses

H_0 – There will be no difference in the test scores for students who have been trained in the test-taking strategy compared to students who have not been trained in the test-taking strategy.

H_1 – There will be a difference in the test scores for students who have been trained in the test-taking strategy compared to students who have not been trained in the test-taking strategy.

Limitations

The test population was limited to 40 eighth grade students at Ritchie County Middle School. This study did not attempt to determine the effects of any factors other than the test-taking strategies as presented during the research. The time frame began in April of 1998 and continued for approximately eight weeks. The research was conducted according to the steps of instructional procedure described in the Learning Strategies Curriculum for Learning Strategies Curriculum: The Test-Taking Strategy (Hughes, C. A., Schumaker, J. B., Deshler, D. D., & Mercer C. D., 1988).

Assumptions

The First Assumption – The first assumption is that the test-taking strategy chosen to conduct the research accurately measured the level of improvement in student performance on tests.

The Second Assumption – The second assumption is that the test-taking strategy was level appropriate for the age of the student subjects.

The Third Assumption – The third assumption is that the number of subjects in the study sample was of adequate size to reflect typical middle school level students.

The Fourth Assumption – The fourth assumption is that the time frame was adequate to show sufficient and valid results.

Definition of Terms

1. Assessment – any method to better understand the current knowledge that a student possesses (Dietel, Herman, & Knuth, 1991).
2. Authentic Assessment – informal and formal student-centered strategies for collecting and recording student information (Morse, 1994).
3. Authentic Tasks – tasks closely related to those used in the "real world" (Dietel et al., 1991).

4. Cooperative Groups – groups formed to fulfill the process of students working together using social skills and achieving academic objectives (Steinbrink & Jones, 1993).

5. Motivation – the students' propensity to engage in full, serious, and sustained effort on academic tasks (Brown & Walberg, 1993).

6. Norm Referenced Tests – teacher administered tests that compare student performance to norms that are based on the scores of others (Pike & Salend, 1995).

7. Performance Assessment – assessment that goes beyond paper-and-pencil to measure student performance (Roeber, 1996).

8. Qualifiers/Distracters – words that limit or modify a test question or answer. These can include words like: (a) all, (b) most, (c) never, (d) rarely, (e) always, and (f) sometimes (Loulou, 1995; "Test-taking strategies," 1996).

9. Standardized Tests – see *Norm Referenced Tests*.

10. Strategy – a purposeful method of solving a problem (Custer & Others, 1991).

11. Test Anxiety – having unusually strong fears about taking tests (Moke & Shermis, 1996).

12. Test-wiseness – the capacity to utilize the characteristics and formats of tests to receive high test scores (Morse, 1994).

13. Testing – the attempt to measure a person's knowledge or intelligence in a systematic way (Wilmore, 1995).

Importance of the Study

The education system of the nation is rated on the performance of the students on large-scale standardized tests. In addition, a major portion of a student's grade for a course is based on the level of performance on classroom tests. Since this is the case, the education system must take testing and the results of testing very seriously.

Educators must instruct students in methods that will help them to take advantage of ways to score high on these tests (Day & Hackett, 1996). Research on effective testing has indicated the importance of proper testing conditions, valid tests and test questions, motivation, and the need for test-wiseness skills (Georgiady &Romano, 1994; Hughes, 1985; ICPAC Information Series, 1996; Niener & Others, 1995; Ohio State Board of Education, 1995; Ross, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1996: "Test-taking strategies," 1997).

CHAPTER 2
Literature Review

Introduction

The act of measuring a person's knowledge or intelligence in a systematic way (Wilmore, 1995) can be called evaluation, assessment, testing, examination, or quiz. Regardless of the term used, schools use systematic evaluations to give direction and guidance on issues like curriculum and policies. In short, evaluation allows schools to plan for the future (Georgiady & Romano, 1994; Ohio State Board of Education, 1995).

Steinbrink and Jones (1993) stated that education has become a very test-intensive environment. This intensity permeates the classroom, but implications of testing reach far beyond the classroom walls. The assessment of students has been the focus of the press in the past few years (Hoachlander, 1998). The public wants to know how schools are measuring student achievement and how these scores compare with other countries (Hoachlander, 1998).

Testing comes in many varying forms. Dietel, Herman, and Knuth (1991) describe testing as something that can be as simple as the teacher's judgement based on a single observation or as complex as a multi-hour standardized assessment. Essentially, passing tests is something everyone does

on a daily basis. Every time a task is completed and someone approves or disapproves, it is a rudimentary form of evaluation (Moke & Shermis, 1996).

Student grades in content areas are based heavily on test scores from content tests (Hughes, 1985). Schools across the nation have been evaluated according to student level of performance on standardized tests. These tests are teacher directed and the students work from test booklets to "bubble" answers on to an answer sheet (Cipriano, 1996). In fact, for good or bad, multiple-choice standardized tests have been the "mainstay of assessment" for the past 30 years (Hoachlander, 1998) and performance on these tests is very closely monitored.

As part of the monitoring process, several questions must be addressed. First, how well did the students perform? Second, why is the performance at this level? Third, what do the experts think about this level of performance? Finally, what must be done to improve this level of performance (Roeber, 1996)? Many of the stakeholders in America's education – parents, politicians, business people, and the general public – have expressed concerns about these questions and the nation's poor performance and achievement when compared to other nations (Brown & Walberg, 1993).

If, as pointed out by Steinbrink and Jones (1993), American schools are test-intensive then why does the United States rank so poorly on an international level? Some research suggests motivation (Brown & Walberg, 1993). Standardized tests, as well as any assessment, are unlikely to produce high scores or impact instruction unless some stakes are attached to the results ("What research says about student assessment," 1996). Students must have the necessary motivation to do well on tests.

Traditional testing, according to the research by Brown and Walberg (1993), does not motivate students to perform well because of several reasons including: (a) the results have no real bearing on student grades; (b) the test results are slow to return; (c) returned results are not explained or are hard for the average person to understand; and (d) many people, at the very mention of a test, experience high stress or even strong fear emotions known as *test anxiety* (Moke & Shermis, 1996).

From the Friday spelling test to the national standardized test, America's education system is unavoidably linked to evaluation and assessment. This inseparable relationship warrants further study ("What research says about student assessment," 1996).

The Study of Assessment

Firms, companies, organizations, and individuals have spent vast amounts of time, effort, and money studying educational assessment policies, procedures, and test structure. The following is a non-inclusive list of entities that study assessment (Baker & Linn, 1991; ERIC Clearinghouse on Assessment and Evaluation, 1998; Lawton, 1997).

1. American Educational Research Association – (AERA)
2. American Evaluation Association – (AEA)
3. Assessment Systems Corporation
4. The Consortium of Equity in Standards and Testing – (CTEST)
5. Consortium for Research on Educational Accountability and Teacher Evaluation – (CREATE)
6. CRESST – National Center for Research on Evaluation, Standards, and Student Testing.
7. Educational Testing Service – (ETS)
8. ERIC Clearinghouse on Assessment and Evaluation – (ERIC/AE)
9. International Association for the Evaluation of Educational Achievement – (IEA)
10. National Assessment Governing Board – (NAGB)
11. National Assessment of Educational Progress – (NAEP)

12. National Center for Educational Statistics – (NCES)

13. The Princeton Review

14. U.S. Department of Education

Purposes and Uses for Test Data

Literally billions of dollars are spent annually for education (Dietel et al., 1991). For this kind of money the tax paying citizens want – and deserve – to see the "return" on their "investment".

Numerous groups use standardized test scores for many different reasons. Policy makers use test results to direct resources, formulate policies, and monitor the general quality of education. Administrators designate program priorities and plan improvements for programs using test scores. Teachers use these scores to monitor student progress, determine student grades, evaluate curriculum, and refine instruction. Students and parents can use scores to assess strengths and weaknesses, determine school accountability, and make educational and career choices (Bell, 1991; Dietel et al., 1991; Pike & Salend, 1995).

These same standardized test scores can be used for additional purposes including: (a) establishing student need for special education services; (b) grouping students for cooperative learning; (c) identifying proper instructional

strategies; and (d) providing regular education teachers with data for special education students (Pike & Salend, 1995). Colleges and universities place great importance on the results of standardized tests (Callan, 1995). Research by Callan (1995) stated that many scholarships are awarded based solely on standardized test scores and/or achievement levels. Admission to some institutions is denied if the scores are below a certain level (Callan, 1995).

The heavy reliance on the scores of a single test for such high stakes has created dissatisfaction in the way students are assessed (Hoachlander, 1998). Those who study testing say that if traditional standardized testing is not improved in quality, sensitivity, and fairness that the underlying design must be strengthened (Baker & Linn, 1991). This has lead to a call for other forms of assessment in addition to the traditional norm-referenced tests (Hoachlander, 1998).

Traditional Testing

Traditional testing can be described as paper-and-pencil assessment that has students work quietly at desks. Traditional standardized tests usually have four distinct sections: (a) multiple-choice; (b) true – false; (c) matching; and (d) fill-in-the-blank (Hughes, 1985). Writing questions for traditional tests have

specific rules that, if followed, produce fair and valid questions (Frary, 1995a, 1995b; Frary, 1996; Kehoe, 1995).

Traditional test questions are used for norm-referenced, or standardized, tests. Standardized tests are exclusively teacher administered tests. Individual student performance is compared to norms set by the scores of others (Pike & Salend, 1995).

Standardized tests have been criticized heavily in recent years. Hoachlander (1998) agrees that standardized tests have a negative aspect, yet, work well for the intended purpose. Standardized tests are economical to develop, relatively easy to administer to a very large number of participants, and offer efficient computer scoring (Hoachlander, 1998).

Standardized tests are designed to test factual information and low level skills, and the tests perform this function nicely. ("Assessment", 1998); however, is this the best type of assessment? Hoachlander (1998) states that standardized tests may test what students know but not necessarily what students can do. America's students and workers need high level skills such as critical thinking, problem-solving, communication skills, and time management to succeed ("Assessment", 1998). These skills are emphasized to be taught in the classrooms but are not easily or economically tested ("Assessment", 1998).

Hoachlander (1998) commented that, without question, multiple-choice tests do not even come close to testing real world problems and practices.

This dilemma leads to the real world question of what actually is the best way to test.. The answer, given by Hoachlander (1998), is that there is no best way to test. Hoachlander (1998) continued by stating that every situation will dictate its own assessment need. Implementation at the national, state and local levels must match the assessment need (Baker & Linn, 1991).

The Changing Style of Assessment

A 1997 report from the National Center for Fair and Open Testing (FairTest), a leading critic of most standardized tests (Sandham, 1997), reports that approximately one-third of the states need " a complete overhaul" of the current testing methods (Lawton, 1997, p. 1). FairTest goes on to say that another seventeen states need "many major improvements" (Lawton, 1997, p. 1). Only Vermont rated as a "model system" (Lawton, 1997, p. 2). FairTest concluded that West Virginia was part of the one-third in line for the "complete overhaul" (Lawton, 1997, p. 2).

RAND's Institute on Education and Training (1994) asserts that true education is too complex for a single form of assessment. A variety of assessment strategies are called for to adequately and accurately measure

education today. Collectively these strategies are called *alternative assessment* (RAND's Institute on Education and Training, 1994).

The term *alternative assessment* refers to assessments that are more "authentic" with *authentic* meaning student-centered strategies for collecting and recording student information (Morse, 1994). Authentic tasks closely relate to "real world" situations (Dietel et al., 1991). Authentic assessment tasks include teacher and student observations, journals, learning logs, and portfolios (Pike & Salend, 1995).

Alternative is an unfortunate term for this assessment strategy because it is not intended as an alternative at all (Hoachlander, 1998). These strategies are intended to be a supplement to traditional testing methods which will provide a comprehensive picture of what students know and can do (Hoachlander, 1998). Although research has shown that the authentic tasks of alternative assessment show positive results in classroom settings, the educational community is resistant to switching from traditional assessment strategies for large scale testing ("What research says about student assessment," 1996).

Scoring tests for a large number of participants is a drawback for alternative assessment ("What research says about student assessment," 1996). Performance tasks required by authentic assessment are not be scored by

computers. Scoring must be done by humans ("What research says about student assessment," 1996). The success or failure of the performance testing strategy is far too dependant on the quality of those who conduct the assessment (Roeber, 1996).

Economics is another drawback for alternative assessment ("What research says about student assessment," 1996). Performance tasks are more expensive because of the materials involved and the human scoring element. The U.S. Department of Education's General Office of Accounting reports that traditional multiple-choice standardized testing cost $42 million dollars while performance based testing would cost $209 million dollars("What research says about student assessment," 1996). This is an astounding $169 million dollar difference. Putting this in perspective is quite easy. Almost five years of traditional standardized testing could be funded for the cost of a single year of performance based testing ("What research says about student assessment," 1996).

Conditions That Have an Effect on Testing

Quality assessment is impacted by the method or style of the test itself; but independent factors also have an effect (Brown & Walberg, 1993). Motivation can make a substantial difference in the success of assessment

(Brown & Walberg, 1993). The quality of those who conduct the assessment can impact negatively or positively the success of assessment (Roeber, 1996). Positive attitudes and skillful familiarity can produce higher scores than negative or apathetic evaluators. Roeber (1996)states that the quality of the individual who conducts the assessment is not only important, but is a "major key to the success of the entire performance project" (p. 3).

R. J. Callan (1995) conducted extensive research on the time-of-day correlation to test scores, suggesting strongly that the time of the day in which a test is given impacts student performance. Callan's 1995 research suggested that if students take a test at a time that matches the individual's optimum alertness time, scores on these tests can be dramatically influenced. The unfortunate fact, however, is that students rarely have the opportunity to choose when most tests are administered (Callan, 1995).

Another factor which influences test scores was reported by E. L. Wilmore after a 1995 study. In the study, students were divided into two similar groups with each group given the same preparation time, instructions, and time to complete the test. The variable? One group was allowed to chew gum and the other was not. The conclusion? The gum-chewing students scored higher than the equally able counterparts (Wilmore, 1995).

Test-Wiseness

"Test-wiseness" was introduced as an official concept in the 1950's. Test-wiseness is described as the ability to utilize the test format and characteristics to achieve high scores on tests (Morse, 1994). Research (Morse, 1994) states three basic assumptions.

1. Test-wiseness does correlate to score differences.
2. Test-wiseness skills can be taught.
3. Test-wiseness varies with age and mental ability.

Test Preparation Strategies

Testing is generally considered the end but some studies say that it can be a valuable learning tool. Toppino and Luipersbeck (1993) assert that the act of preparing for and taking the test, if done properly, can be more beneficial to students than additional study. The following is a cumulative list of test preparation steps and/or techniques that can be used by students to increase test scores. Although the list is extensive, it is not intended to be followed in the order presented nor is it intended to be used as a step-by-step guide for proper test preparation. It only intended as a listing of steps and/or techniques presented in the referenced research.

1. **Be confident and have a positive attitude** (Georgiady &Romano, 1994; Hughes, 1985; Ohio State Board of Education, 1995; Ross, 1994; "Test-taking strategies," 1995).

2. **Study in a quiet area** (Wilmore, 1995).

3. **Be comfortable** (Wilmore, 1995).

4. **Get organized** (Day & Hackett, 1996; Georgiady &Romano, 1994; ICPAC Information Series, 1996; Wilmore, 1995).

5. **Practice taking the test** (Bakunas, 1993; Custer & Others, 1991; Hoyos, 1996; Moke & Shermis, 1996; Wilmore, 1995).

6. **Study in small blocks of time** ("Test-taking strategies," 1995; "Test-taking strategies," 1997; Wilmore, 1995).

7. **Keep up with homework and out-of-class studies** (Georgiady &Romano, 1994; ICPAC Information Series, 1996).

8. **Get plenty of rest/sleep** (ICPAC Information Series, 1996; Niener & Others, 1995; "Test-taking strategies," 1995).

9. **Eat healthy** (ICPAC Information Series,1996; Niener & Others, 1995; "Test-taking strategies," 1995).

10. **Relax** (ICPAC Information Series, 1996; "Test-taking strategies," 1995).

11. **Avoid cramming** (Loulou, 1995; Ohio State Board of Education, 1995; "Test-taking strategies," 1995; "Test-taking strategies," 1997).

12. **Use memory aids such as mnemonics, charts, and flash cards** (Day & Hackett, 1996; "Test-taking strategies," 1995; "Test-taking strategies," 1997).

13. **Study in a group** (Loulou, 1995; Steinbrink & Jones, 1993; "Test-taking strategies," 1995; "Test-taking strategies," 1997).

14. **Use games and simulations** (Steinbrink & Jones, 1993).

In addition to preparation techniques for the student, teachers can also follow preparation activities to help prepare students to take tests. What follows is a continuum of preparation activities from what is considered the most ethical to the most unethical (Bell, 1991) as it relates primarily to standardized testing situations.

1. Training in test-wiseness skills.
2. Check all answer sheets to ensure completeness.
3. Use motivation techniques to improve test scores.
4. Develop curriculum based on test content.
5. Present items similar to the test questions.
6. Use commercially prepared score-boosting materials.

7. Do not include low achieving students' scores in final report.

8. Present items verbatim from the test.

Test-Taking Strategies

Ready or not, the test time will arrive. At this point there will be nothing but the paper, pencil, and wits to help the student (Hughes, 1985); however, with prior test-taking knowledge, there are ways to boost test scores even if the student knows absolutely no content information (Hughes, 1985).

As with the previous section on test preparation strategies, the following is a cumulative list of test-taking strategies that can be used by students to increase test scores. Although the list is comprehensive, it is not intended to be followed in the order presented nor is it intended to be used as a step-by-step guide for proper test-taking. It only intended as a listing of steps and/or techniques presented in the referenced research.

1. **Stay calm and relax** (Hughes, 1985; ICPAC Information Series, 1996; "Test-taking strategies," 1995; Wilmore, 1995

2. **Read the instructions carefully** (Custer & Others, 1991; Hughes, 1985; ICPAC Information Series, 1996; Life Skills Series, 1995; Loulou, 1995; Moke & Shermis, 1996; Ohio State Board of Education, 1995; Russell &

Hazzard, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1996; "Test-taking strategies," 1997; Wilmore, 1995).

3. **Eliminate obvious incorrect answers** (Cipriano, 1996; Hughes, 1985; Niener & Others, 1995; "Test-taking strategies," 1995).

4. **Answer the easy questions first by skipping the ones you do not readily know** (Cipriano, 1996; Custer & Others, 1991; Hughes, 1985; Life Skills Series, 1995; Ross, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1997; Wilmore, 1995).

5. **Mark any items you wish to check over at the end of the testing time** (ICPAC Information Series, 1996; Loulou, 1995; "Test-taking strategies," 1995; "Test-taking strategies," 1996).

6. **Underline key words** (Cipriano, 1996; Moke & Shermis, 1996; Life Skills Series, 1995; Ross, 1994).

7. **Watch for clue words known as *qualifiers* or *distracters* such as all, every, nothing, always** (Custer & Others, 1991; Hughes, 1985; Life Skills Series, 1995; Loulou, 1995; Niener & Others, 1995; Ohio State Board of Education, 1995; Russell & Hazzard, 1994; "Test-taking strategies," 1995; "Test-taking strategies," 1996).

8. **Answer all of the questions. Never leave a blank** (Custer & Others, 1991; Niener & Others, 1995).

9. **Guess if there is no penalty such as an incorrect answer is minus one and a blank answer is minus one an a half** (Custer & Others, 1991; Loulou, 1995; Niener & Others, 1995; Ohio State Board of Education, 1995; "Test-taking strategies," 1995; "Test-taking strategies," 1997).

10. **Questions from other sections or parts of the test may help answer the unknown questions** (Loulou, 1995; Ohio State Board of Education, 1995; "Test-taking strategies," 1995).

11. **The initial response is usually the correct one** (Russell & Hazzard, 1994; "Test-taking strategies," 1996).

12. **Use time wisely and use all of the time** (Custer & Others, 1991; ICPAC Information Series, 1996; Life Skills Series, 1995; Moke & Shermis, 1996; "Test-taking strategies," 1995; "Test-taking strategies," 1996).

13. **Check the test to be sure everything is complete and in order** (Cipriano, 1996; Custer & Others, 1991; Hughes, 1985; ICPAC Information Series, 1996; Life Skills Series, 1995; "Test-taking strategies," 1995; "Test-taking strategies," 1996 "Test-taking strategies," 1997).

Some strategies were mentioned in the review of the literature but were not as prevalent as those previously noted. These include: (a) neatness counts (Custer & Others, 1991); (b) when in doubt choose B or C (Custer & Others, 1991); and (c) read the entire question (Russell & Hazzard, 1994).

Test-Taking and Test Preparation Acronyms

Many test-taking strategies discussed in the literature employed the acronym method for remembering how to wisely take or prepare for a test. The following are four examples.

1. PIRATES (Hughes, 1985)

   P – Prepare to succeed

   I – Inspect the instructions

   R – Read, remember, reduce

   A – Answer or abandon

   T – Turn back

   E – Estimate

   S – Survey

2. SCORER (Custer & Others, 1991)

   S – Schedule time

   C – Clue words

   O – Omit difficult questions

   E – Estimate answers (intelligent guessing)

   R – Review your work

3. FORCE (Custer & Others, 1991)

F – Find out what is on the test

O – Organize

R – Review

C – Concentrate

E – Early exam (practice tests)

4. LEARN (Day & Hackett, 1996)

L – Listen for hints, clues, important information

E – Examine your material

A – Apply study and memory strategies

R – Review every night

N – Nail the test

Improvement Results From Studies

The research presented in the three previous sections on testing strategies shows that students who have, or are taught, test-taking skills score better on traditional tests. Steinbrink and Jones (1993), who did studies on cooperative test reviews, consistently found that test mean score gains were 10 points or

more over traditional test review strategies. This research showed that the majority of the gains were for students considered in the lower half of the class.

In the study conducted by Hughes (1985) the subjects, special education students, were pre-tested on two types of tests; "Test-wiseness tests" and "Generalization tests". In the tests for "Test-wiseness" students were given tests constructed to determine the level of test-wiseness. Students were pre-tested, taught the test-taking strategy PIRATES, and then posttested. The results showed that students averaged 32% of the available points on the pre-test and 95% after the training on the posttest.

In the "Generalization test" phase students were given tests required in the regular content classes. Students were pre-tested, taught the test-taking strategy PIRATES, and then posttested. The results showed that students averaged 65% of the available points on the tests before being taught the test-taking strategy and 75% after the training (Hughes, 1985).

E. L. Wilmore (1995) concludes that students who are allowed to chew gum during testing are more relaxed and able to concentrate and therefore received slightly higher scores. Another study by Brown & Walberg, (1993) in which motivation for testing was studied. The conclusion was that students who were given motivation to do well on standardized tests scored higher than those who received the "usual standardized test instructions".

Summary

Research on effective testing has indicated the importance of proper testing conditions, valid tests and test questions, motivation, and the need for test-wiseness skills. The results of the studies discussed in the literature research show strong and overwhelming evidence that instruction on the proper ways of preparing for tests and strategies for effectively taking a test are almost as important as the content itself.

CHAPTER 3
Method

Subjects

The research was conducted using student volunteers from the six eighth grade science classrooms. The subjects were 40 eighth grade students enrolled at Ritchie County Middle School. The sample included twenty girls and twenty boys divided equally between the control and experimental groups. Ten boys and ten girls were chosen by random selection to be the control and the remaining were the test subjects. The students participated by virtue of the students' and teacher's willingness to participate in the study. Students in these classes, as well as the subjects chosen to be part of the study, were heterogeneously mixed to include gifted, regular education, learning disabled, and mentally impaired.

Procedure

The research was conducted according to the steps of instructional procedure described in the Learning Strategies Curriculum for Learning Strategies Curriculum: The Test-Taking Strategy (Hughes, C. A., Schumaker, J. B., Deshler, D. D., & Mercer C. D., 1988).. The step addressing the grade-

appropriate practice and feedback was not conducted because of time constraints and availability of content area classroom testing opportunities.

All forty subjects participated in the pre-testing step of the test-taking strategy during the noon intramural time. The twenty test subjects were taught the test-taking strategy during this same time period. The control group received pre and posttesting only, with no training on the test-taking strategy. None of the students had received previous test-taking strategy training. The posttesting step was done for all forty subjects during this same time period.

The steps of the PIRATES Test-Taking Strategy are as follows:

The Test-Taking Strategy: PIRATES

Step 1: Pretest and Obtain Commitment to Learn

Students were tested to determine current learning habits with regard to how well they take tests and what kinds of strategies are used when they take a test. The scores of those who would receive training in the test-taking strategy were compared to those who would not receive training. Once the pretest was graded, verbal feedback was given to each participant.

Step 2: Describe

Students were provided with rationales to show the benefits of the strategy and given an idea of the kinds of results expected after learning the test-taking strategy. Each step of the strategy was described thoroughly to the students.

Step 3: Model

The teacher demonstrated the process involved in the test-taking strategy in front of the students while "thinking aloud" so the students could witness all of the cognitive processes as well as overt behaviors involved in performing the strategy. As a final part of the demonstration the teacher involved the students in the verbal rehearsal to check for understanding.

Step 4: Verbal Rehearsal

Students were asked to verbally rehearse the steps of the strategy in sequence. This was done in a group fashion by using a "rapid fire" practice of pointing to each student in the group in succession and requiring the contribution of the next step of the strategy. The final phase of this step is individual determination of the ability to conduct this strategy verbally.

Step 5: Controlled Practice and Feedback

Students practiced the process of the test-taking strategy through the use of the pre-designed *Controlled Practice Tests* supplied in the instruction manual. Each time the students practiced using the strategy on these tests individual feedback explained the progress. This progress was recorded and charted each time for each student.

Step 6: Posttest

All forty students were again tested to determine the current learning habits with regard to how well each took the test. The scores of those who received training in the test-taking strategy were compared to those who did not receive training. Once the posttest was graded, verbal feedback was given to each participant.

Design

This study used the Group Comparison Research – Experimental design (Crowl, 1996). The research involved random selection of a sample of subjects in the eighth grade, random assignment of subjects to experimental and control

groups, and exposure of the experimental group to a test-taking strategy called PIRATES (Hughes et al., 1988).

The PIRATES test-taking strategy used a pretest – posttest design. In this type of Group Comparison Research – Experimental (Crowl, 1996), both the control and experimental groups were pre-tested. The experimental group was trained in the test- taking strategy and the control group did not receive the training. Both groups were then post-tested and the results were compared.

Instrumentation

Learning Strategies Curriculum for Learning Strategies Curriculum: The Test-Taking Strategy (Hughes et al., 1988).underwent extensive and varied field-testing to validate the efficiency of the instructional approach (Hughes et al., 1988). Complete validation research reports and monographs are maintained by the Institute for Research in Learning Disabilities, University of Kansas (Hughes et al., 1988).

The field-test results show that, if the instruction procedures are followed, significant gains are realized when using the PIRATES test-taking strategy (Hughes et al., 1988). The instructors manual for the PIRATES test-taking strategy (Hughes et al., 1988) states the following:

Specific research conducted on the *Test-Taking Strategy* has shown that before students learned this strategy, they could correctly answer an average of 65% of the test questions. After they mastered the strategy, they could answer an average of 75% of the questions. (p. 3)

CHAPTER 4
Results

Sample

The research was conducted using student volunteers from the six eighth grade science classrooms. The subjects were 40 eighth grade students enrolled in a middle school in rural West Virginia. The sample included twenty girls and twenty boys divided equally between the control and experimental groups. Ten boys and ten girls were chosen by random selection to be the control and the remaining were the test subjects. The students participated by virtue of the students' and teacher's willingness to participate in the study. Students in these classes, as well as the subjects chosen to be part of the study, were heterogeneously mixed to include gifted, regular education, learning disabled, and mentally impaired.

Findings

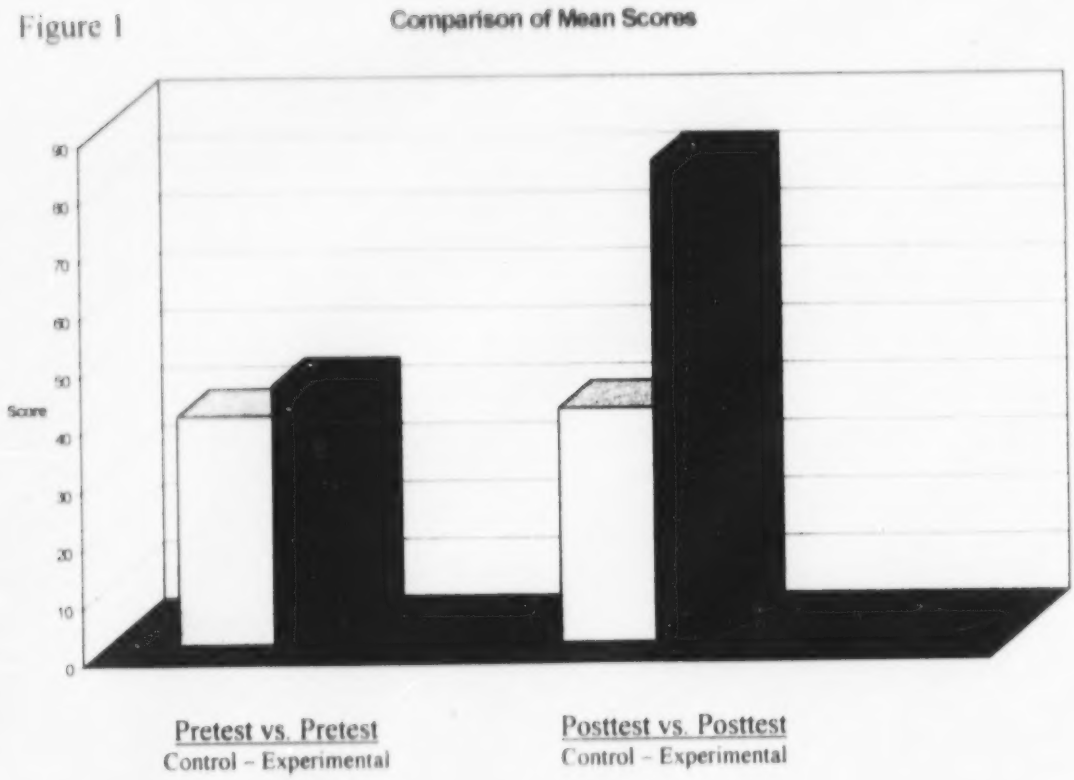
Analysis of the data collected during this experiment shows that using a test-taking strategy during testing significantly improved test scores. The students in the experimental group who received the test-taking strategy training improved their test scores on the posttest significantly more than their control group counterparts who did not receive any test-taking strategy training.

Results

There were two basic areas (based on the mean) compared during this experiment as shown in Figure 1.

1. Experimental Group pretest vs. Control Group pretest
2. Experimental Group pretest vs. Experimental Group posttest

Figure 1



An informal observation of figure 1 shows that the experimental group performed better on the posttest than the control group. Table 1 shows the mean scores for the pre and posttests for both the control and experimental groups.

Table 1

	Mean Scores	
Pretest	39.7	44.9
Posttest	40.6	83.4
	Control	Experimental

An analysis of the pretest – posttest scores of the Experimental Group – those who received test-taking strategy training – showed that every student scored higher on the posttest than on the pre test score (see figure 2). Analysis of the pretest – posttest scores of the Control Group – those who did not receive any test-taking strategy training – showed that10 students' scores went up, 5 students' scores down and 5 students' scores remained the same (see figure 3).

Figure 2

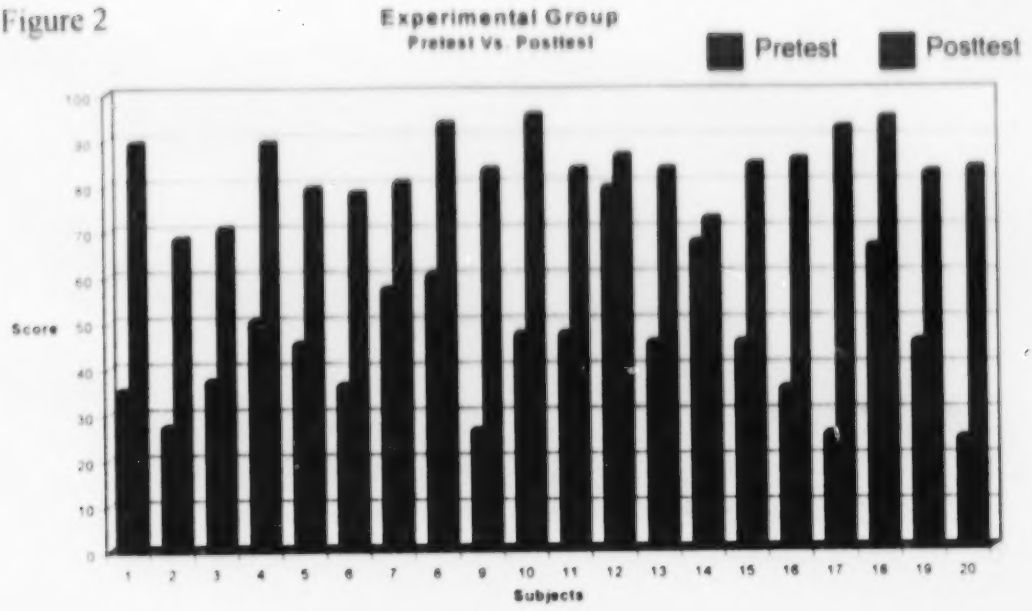
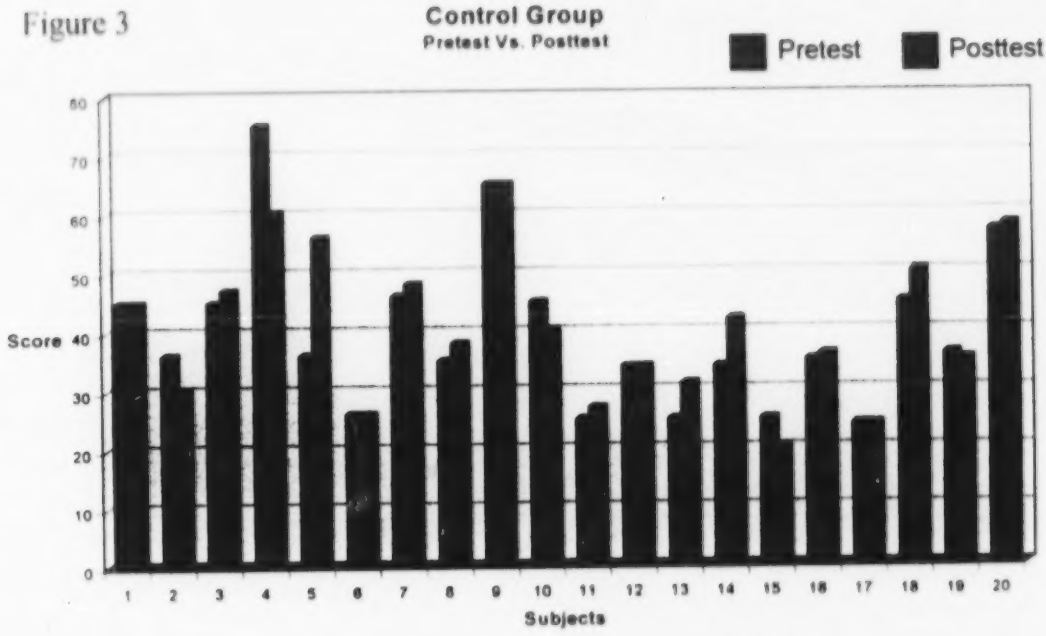


Figure 3



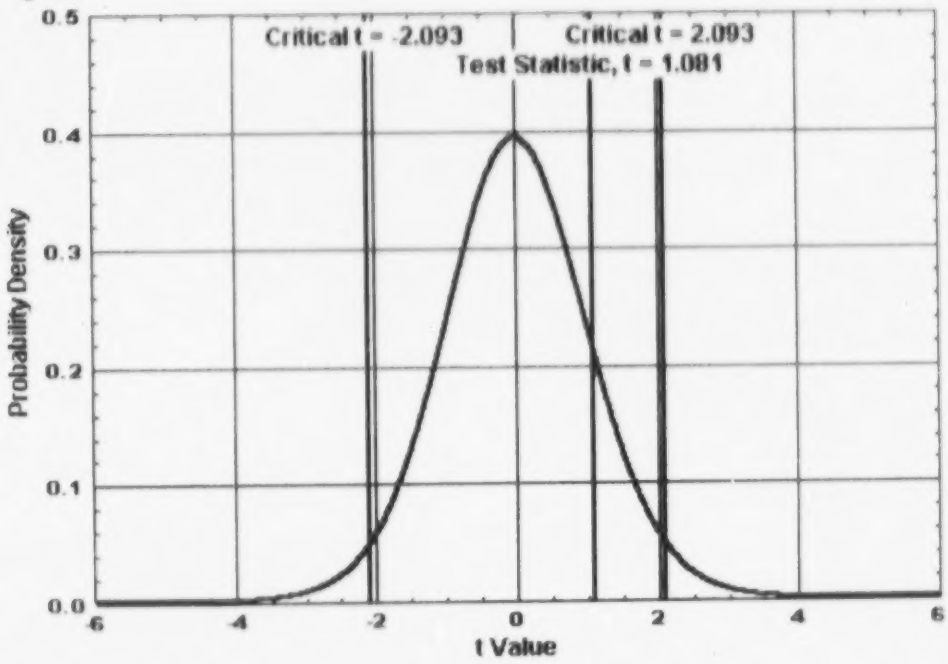
Control Group pretest vs. Experimental Group pretest

Results of the *t* test show that there is no significant difference between the pretest scores of the control and experimental groups. This indicated that both the control and experimental groups started the study on the same test-taking skill level. Table 2 and Figure 4 show the results of the *t* test conducted on the Experimental Group pretest vs. Control Group pretest.

Table 2

	Sample Size	Test Statistic, *t*	Critical *t*	Accept or Reject the null hypothesis
Control Group pretest vs. Experimental Group pretest.	20	1.081	±2.093	Accept

Figure 4



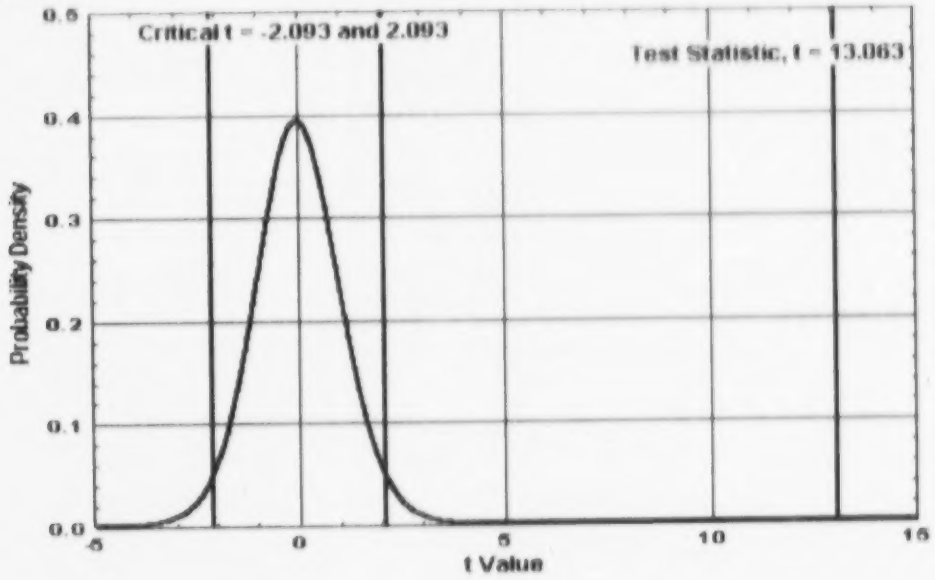
Control Group posttest vs. Experimental Group posttest

Results of the *t* test show that there is a significant difference between the posttest scores of the control and experimental groups. The rejection of the null hypothesis indicated that the test-taking strategy improved the posttest scores of the experimental group significantly. Table 3 and Figure 5 show the results of the *t* test conducted on the Control Group posttest vs. Experimental Group posttest.

Table 3

	Sample Size	Test Statistic, *t*	Critical *t*	Accept or Reject the null hypothesis
Control Group posttest vs. Experimental Group posttest	20	13.063	±2.093	Reject

Figure 5



Control Group pretest vs. Control Group posttest

Further analysis of the results of the *t* test show that there is no significant difference between the pretest scores of the control group and posttest scores of the control group. This indicated that there was no improvement in the test-taking ability of the control group during the time span of this study. Table 4 shows the results of the *t* test done on the Control Group pretest vs. Control Group posttest.

Table 4

	Sample Size	Test Statistic, *t*	Critical *t*	Accept or Reject the null hypothesis
Control Group pretest vs. Control Group posttest.	20	.0909	±2.093	Accept

Experimental Group pretest vs. Experimental Group posttest

Results of the *t* test show that there is a significant difference between the pretest scores of the experimental group and posttest scores of the experimental group. This indicated that there was significant improvement in the test-taking ability of the experimental group during the time span of this study and that this improvement was caused by to the test-taking strategies

training. Table 5 shows the results of the *t* test conducted on the Experimental Group pretest vs. Experimental Group posttest.

Table 5

	Sample Size	Test Statistic, *t*	Critical *t*	Accept or Reject the null hypothesis
Experimental Group pretest vs. Experimental Group posttest.	20	11.0524	±2.093	Reject

CHAPTER 5
Discussion and Implications

The results of this study add support to the considerable amount of previous research on the effects of test-wiseness on test scores. The consistent findings with that of Hughes et al., (1988) confirm that test-taking strategies, if applied by the student during the testing situation, will significantly increase student scores. The present study suggests further that these strategies can be successful with all ability levels for middle school students.

An important aspect of this study is that it demonstrates the effectiveness and efficiency of an instructional package that was relatively easy to implement. This was one of several such packages available on the market. The present package contained complete and clear instructions as well as all the black-line masters. Each step was organized in such a manner that the process flowed with minimal teacher effort.

Instructions for the instructional package used in this study clearly stated that the best results would be attained only if the exact instructional steps from the Instructors Manual were followed carefully. Future research should be conducted to show possible implications of teacher modification to the published test-taking strategies. From a practical perspective, if instructional strategies were modified slightly to match teacher pedagogy, the results may

increase because of the ease of delivery created and the commitment of the teacher to the personalized strategy.

Future study could be done to compare effect of a students' academic ability level on test scores. This study was inconclusive; however, Hughes et al., (1988) suggest that instruction in test-taking strategies can be particularly useful for low-achieving students. Suggestions for future studies would be to test different age level students, to test a larger sample, and to increase the time span of the study.

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Appendix

Ritchie County Middle School
Ellenboro, WV

Statement of Consent to Conduct Research

To whom it may concern,

_____ (student name) has volunteered to participate in research on test-taking strategies for a master's thesis entitled THE EFFECTS OF TEST-TAKING STRATEGIES ON THE TEST SCORES OF MIDDLE SCHOOL LEVEL STUDENTS submitted by Katrina M. Andrews to Salem-Teikyo University

The research will include a pre and post test of student ability to take test effectively. One half of those chosen will participate in further instruction on effective strategies to improve test scores. All names of participants will remain confidential

_____ Student Signature

_____ Parent Signature

C 2

Ritchie County Middle School
Ellenboro, WV

Statement of Consent to Conduct Research

To whom it may concern,

The research as described in Chapter 3 – Methods of the thesis THE EFFECTS OF TEST-TAKING STRATEGIES ON THE TEST SCORES OF MIDDLE SCHOOL LEVEL STUDENTS submitted by Katrina M. Andrews to Salem-Teikyo University has been approved by the undersigned.

John Ditlow, Principal

G. A. McClung, Superintendent of Schools